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D I A L O G U E

The Morality of Market Mechanisms

Summary

In Pope Francis' Encyclical on the environment, *Laudato Si'*, the leader of the Catholic church presents a moral argument for combating climate change and other environmental harm. As he has done throughout his papacy, the Pope highlights concerns about economic disparity, arguing that climate change disproportionately impacts developing nations and the world's poor. Along with critiques of "consumerism" and the modern economic system, the Pope expressed deep skepticism about the motives and impacts of market mechanisms as emissions reduction tools. The Pope is not the first to challenge the ethics of market-based systems of environmental protection. Critics have argued that buying and selling pollution rights removes the moral stigma of pollution and that inequity is built into the system by allowing the rich to buy their way out of pollution reduction regimes. Others have worried that market systems can create pollution hotspots. But many others in the environmental community, particularly in the United States, have come to see market-based mechanisms as a potent, cost-effective, and morally and legally defensible way to achieve pollution reduction goals. On October 1, 2015, the Environmental Law Institute (ELI) convened an expert panel to discuss the Pope's position, its bearing on global efforts to curb greenhouse gas emissions, and how market-based methods of pollution control serve, or fail to serve, sustainability goals. Below we present a transcript of the discussion, which has been edited for style, clarity, and space considerations.

Leslie Carothers (moderator) is a Visiting Scholar at the Environmental Law Institute and a past president of ELI (2003-2011).

Lucia Ann Silecchia is a Professor at The Catholic University of America Columbus School of Law.

Bob Perciasepe is President of the Center for Climate and Energy Solutions and former Deputy Administrator of the U.S. Environmental Protection Agency.

Caroline Farrell is Executive Director of the Center on Race, Poverty, and the Environment.

Leslie Carothers: My role as a moderator is to explain briefly why ELI chose the morality of market mechanisms as the topic for today's Dialogue, and then to introduce our three stellar panelists to provide their perspectives. Afterward, we will have time for dialogue with our audience members.

Recently, Pope Francis came to Washington where he displayed his considerable personal warmth and compassion. He also presented a call for social justice, for care of the poor, and for care of the earth. As most of you know, environmentalists welcomed his Encyclical Letter, *Laudato Si'*, *Praise Be to You*, issued in May 2015.¹ It contains a thorough review of the theological and scientific support for more aggressive action to combat environmental harm, including the looming danger of climate change. Many agree with his criticism of a consumerist economy that wastes resources and leaves many people in poverty.

However, many environmental policy advocates were dismayed by his expression of deep skepticism about the motives and impacts of tools such as emission trading to control carbon pollution. In one paragraph of his 184-page encyclical, he states:

The strategy of buying and selling carbon credits can lead to a new form of speculation which would not help reduce the emission of polluting gases worldwide. This system seems to involve a quick and easy solution under the guise of a certain commitment to the environment but in no way does it call for the radical change which present circumstances require. Rather, it may simply become a ploy which permits maintaining the excessive consumption of some countries and sectors.²

Let me briefly explain what we mean by market mechanisms for purposes of today's Dialogue. There are many variations but, stated simply, what we mean are pollution reduction tools that seek to mobilize market forces by putting a price on the pollutant to be controlled. Two main types have tended to dominate the debate. One is a carbon tax. A carbon tax exacts payment for specific amounts of pollutants and provides an incentive for the polluter to reduce the pollution in order to avoid the tax. If the regulators and their economists set the tax properly, many polluters will choose to comply by reducing their pollution. Those with unusually high control costs will pay the tax. Those who can't do either, I suppose, will cease operation.

1. Encyclical Letter *Laudato Si'* (May 24, 2015), available at http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html [hereinafter *Laudato Si'*].

2. *Id.* ¶ 171.

In the second, an emission trading system, the starting point is the cap that is set by regulators to create the market by limiting the amount of allowable emissions. The allowable emissions can be distributed at the outset in a variety of ways. But in the end, a source that does not have enough allowances to cover its pollution will have to reduce those emissions or else buy credits. The credits would come from sources that can more cheaply reduce their pollution and can generate extra credits that they can sell. The trading system is intended to reduce overall compliance costs by securing a larger portion of the total reduction from the sources with the lower compliance cost. In each system, you can reduce the level of pollution over time. The tax can be raised, and the cap can be lowered.

Pope Francis is not the first notable person to criticize market mechanisms. Harvard professor Michael Sandel asserted in 1997 that “it’s immoral to buy the right to pollute.”³ Others have warned of the impacts of emission trading on geographic areas and communities where sources choose to buy credits rather than reduce pollution. We have substantial experience with such systems to test their impacts. And if China’s recent commitment to adopt a national emission trading system for carbon emissions actually moves forward, we will see how such systems could work on a much broader scale. That’s part of the reason why today’s topic is timely and important.

Our first speaker is Prof. Lucia Ann Silecchia of The Catholic University of America Columbus School of Law, a leading expert on environmental ethics and Catholic social thought.

Our second speaker is Bob Perciasepe, President of the Center for Climate and Energy Solutions, also known as C2ES, an independent, nonpartisan organization that strongly advocates for the use of market mechanisms as well as traditional regulation to reduce carbon emissions. Having formerly held decisionmaking roles in both state and federal government—most recently as Deputy Administrator of the U.S. Environmental Protection Agency (EPA)—Bob is very well equipped to present the perspective of a government policymaker.

Caroline Farrell, our third presenter, is Executive Director of the Center on Race, Poverty, and the Environment, based in Delano, California. She is an award-winning advocate for environmental justice, representing low-income communities and communities of color. Her organization, along with Communities for a Better Environment, challenged the California Air Resources Board (CARB) scoping plan for implementation of its emission trading program. She won a decision in court requiring further analysis of alternatives by CARB and will tell us more about this. CARB has now complied with that court order and the program is moving forward.

Lucia Ann Silecchia: I think you could not have picked a more timely topic for this program. As it was originally framed, the context for our discussion today was Pope Francis’ encyclical *Laudato Si’*. But as we saw during his recent visit to the United States, environmental responsibility was a theme that Pope Francis talked about at almost every opportunity. Whether it was domestically in his conversations with the president and the U.S. Congress, whether it was internationally in his address to the United Nations, or liturgically when he celebrated religious services, Pope Francis repeatedly returned to many of the themes in *Laudato Si’*.

I would like to do three things. One is to put this encyclical in some context by explaining how it relates to prior religious teaching on ecological questions—what it builds on and how it may be similar to or different from its antecedents. Second, I would like to discuss some of the major themes that come through in *Laudato Si’*’s 246 paragraphs. Third, I would like to speak about a few highlights of the encyclical’s teaching about the economy generally and about incentives in particular.

The name of the encyclical, *Laudato Si’*, means *Praise Be*. It is traditional that the name of an encyclical is the document’s first two words in Latin; so *Praise Be* is the name of the encyclical. The subtitle is: *On Care for Our Common Home*. That is no accident because both the word “economy” and the word “ecology” have the same Greek root, which means “home.” We see throughout the encyclical, and in the very title itself, that profound link between how we view our common home and how we view our economy.

Although *Laudato Si’* is often referred to in the popular press as the “climate change encyclical,” of its 246 paragraphs, I would say that fewer than 5% actually deal with climate change. What we see in this document is a very broad perspective. It is broad in two ways: One, it takes a very expansive view of environmentalism and environmental issues, talking about such diverse issues as biodiversity and urban environmental health problems, to name a few. Two, it talks not only about the natural physical environment, but also the social environment, the spiritual environment, and the political environment. So, it certainly takes a very broad view of these issues.

Historically, an encyclical was a letter, and there are centuries of traditions of encyclicals. Originally, they were designed to be letters that would be circulated among bishops only. Over time, they expanded to be sent to bishops and clergy; then bishops, clergy, and religious laity. Currently, starting 30 or 40 years ago, they have been intentionally addressed to “all people of goodwill.” That certainly was the way this encyclical was addressed, making the claim that there are moral, ethical, and religious principles of interest to others beyond just the religious community—that the encyclical has something to say more broadly.

As a religious text, the encyclical has biblical roots. For example, in the Old Testament beginning with the Genesis account, there is a foundational question about

3. Michael J. Sandel, *It’s Immoral to Buy the Right to Pollute*, N.Y. TIMES, Dec. 15, 1997, at <http://www.nytimes.com/1997/12/15/opinion/it-s-immoral-to-buy-the-right-to-pollute.html>.

human responsibility: On the one hand, the reference to the human person having been made “in the image and likeness of God,” articulates the special and unique role for the human person in creation. On the other hand, the text of Genesis also speaks about dominion and subduing creation. This has been interpreted incorrectly or without looking at it through the lens of human responsibility. So, there is certainly some tension.

There is also, in the Old Testament, a very strong link between care of creation and care of each other, care of the community. For example, in traditions such as Sabbaticals and Jubilee Years, there were parallel traditions. Farmers would, in these special times, let the land lay fallow, a practice that we now know is good ecologically. But, these would also be times when people would forgive debts and create right relationships with the community. Those two obligations—to creation and to community—traditionally were tied together.

The New Testament is full of pastoral images. Many of the times when Christ teaches about God, pastoral images are used: fishing, farming, shepherding. This theme is very strong in Scripture, and it carries over into encyclical teachings.

Generally, we trace modern encyclicals, such as *Laudato Si'*, back to the 1880s. Pope Leo XIII's *Rerum Novarum* (“Of New Things”), the first encyclical in the modern canon, was on labor. That was true with many of the early encyclicals. They focused on economic issues that would have social, moral, and political implications; thus, labor was often addressed. Ecology had never before, until *Laudato Si'*, been the topic of a formal papal encyclical. However, this encyclical is not the first time that that a pope has addressed ecological questions. When we look at recent prior popes, they responded to many of the environmental issues of their day and their time, just as *Laudato Si'* does.

Pope Paul VI, in 1972, wrote a letter to the participants in the Stockholm Conference.⁴ That year was, in many respects, the beginning of what we think of as the modern environmental law period. In that context, Pope Paul VI wrote with a great deal of optimism about what he thought of as the new diplomatic movement in environmental protection. He saw the world community coming together for the first time to address many environmental questions, and had a very positive and optimistic view about the direction in which that would go. He focused a great deal on sustainable development and what environmental protection might mean for the human person. He talked about the growingly obvious North/South divide. In particular, he was concerned with some of the issues that the world was becoming aware of as it continued moving out

of a period of colonialization. At the time, World War II was still very recent, and so he focused on the ecological impacts of war, nuclear war in particular.

Pope John Paul II wrote a 10-page document on ecology in 1990. Every January 1st is the World Day of Peace for the Catholic church, so popes will issue a statement on a different topic. Pope John Paul II was the first to pick ecology as his topic in 1990. He called that document, “*Peace With God the Creator, Peace With All Creation.*” It is one of the most beautiful environmental documents that I’ve seen because it expresses a great love and appreciation for nature. Pope John Paul was a lover of nature as recreation, so that view of the natural world is in there. He did not mention climate issues because he was writing back in 1990, although climate issues were on the horizon. What he spoke about a great deal was the link between right relationships with God and right relationships with each other that flow into right relationships to the created world. He saw all of those as connected. He also reflected a view of nature as a gift from God. Thus, disrespect for nature is a sign of disrespect for the creator; that was a theme throughout.

Pope Benedict XVI’s work in this area is, I think, very underappreciated. He was called the “Green Pope.” He had solar panels put on top of the Vatican Conference Hall. He himself purchased carbon credits. He pursued carbon offsets for the Holy See. He devoted his 2010 Day of Peace message, “*If You Want to Cultivate Peace, Protect Creation,*” to ecology in honor of the 20th anniversary of Pope John Paul’s 1990 Day of Peace message. Pope Benedict XVI’s message was a moral and theological reflection focusing primarily on human responsibility: What does it mean for us to play that special role in creation?

Which then brings us to Pope Francis and his encyclical, *Laudato Si'*. It was much anticipated. I do not remember ever having seen an encyclical spoken about so much before it came out. People loved it or hated it before even a word was leaked out. It was certainly something that came in a moment when the world’s attention was focused on this issue. It is in a very different style from the prior encyclicals. It is multidisciplinary—speaking about law, architecture, art, urban planning, philosophy, theology, criminology, sociology. It is all in there. I think that is both its great strength and its great weakness. One of the ways in which that could be a weakness is that when you read a paragraph in the encyclical, it sparks a thought, but then it moves on to something else.

Yet, the strength of that approach is that it is multifaceted. It recognizes that every person, every field of inquiry, has something to contribute, and the ideas it addresses are both very broad and very narrow. You see this from the broad philosophical principles down to the very concrete recommendations such as, “Don’t use air conditioning.” Again, that is simultaneously its strength and its weakness. It has global ramifications and local ramifications. That can make it somewhat difficult to read, because it requires shifting gears a lot. However, counteracting that difficulty

4. The United Nations Conference on the Human Environment, held in Stockholm, Sweden, in June 1972, resulted in a document known as the Stockholm Declaration, the first internationally supported document recognizing a human right to a healthy environment. Declaration of the United Nations Conference on the Human Environment, in the Report of the United Nations Conference on Environment and Development, U.N. Doc. A/CONF.48/14/Rev. 1 (June 16, 1972).

is the fact that it is very colloquial, not academic in tone. That might help to make it more widely read than some of the other encyclicals. What is also interesting is that it expresses a pessimism that I did not see before in some of the earlier encyclicals.

In terms of the themes, paragraph 16 is the one paragraph to read if you want to focus on a single paragraph. In paragraph 16, Pope Francis says, “I want to talk about these 10 things.” It’s a great “CliffsNotes” paragraph for the whole encyclical.

Of those 10 things, there are some dominant themes. One is that he focuses on an intimate relationship between the poor and the fragility of the planet. I think that is something that you see through every page of the encyclical and certainly in his comments, both before and after it was issued. Second, he has a profound conviction that everything in the world is connected, so you cannot look at ecological issues without taking a look at economic issues, political issues, historical issues. That is a very powerful theme. Third, he has a very strong critique of both technology and of the economy.

Fourth, he speaks of the value proper to each creature. He focuses again on the centrality of the human person and says we make a mistake in believing that the human person is not unique. But at the same time, we make a mistake if we have what he calls a “misguided anthropocentrism,” ignoring other parts of creation. He invites people to a consideration of that complexity. His fifth theme is the human meaning of ecology: What is the proper relationship between human person, Creator, creation? Then, as his final dominant theme, he says, “We should seek to think of other ways of understanding the economy and progress.” That certainly is a critique throughout the encyclical. He’s quite pessimistic about the state of our understanding of the economy and progress.

If you take a look at his negative view of the market and the economy generally, he has one paragraph in which he critiques both the political system and the economy. He says (in a pessimistic view of both lawyers and economists):

It is remarkable how weak international political responses have been. The failure of global summits on the environment make it plain that our politics are subject to technology and finance. There are too many special interests, and economic interests easily end up trumping the common good and manipulating information so their own plans will not be effective.⁵

One of his strongest critiques is directed at “common carbon credits”—the subject of our discussion. He says this can lead to “a new form of speculation” and will not help reduce emissions. This type of approach, in Pope Francis’ view, provides a quick and easy solution under the guise of commitment to the environment, but it does not advance the radical change that he believes present circumstances require. It may become a ploy that permits maintaining excessive consumption by some countries and sectors.

He then also says:

It should be kept in mind that environmental protection cannot be assured solely on the basis of financial calculations of cost and benefit. The environment is one of those goods that cannot be adequately safeguarded or motivated by market forces. We need to reject a magical conception of the market which would suggest that problems can be solved simply by an increase in the profits of companies or individuals. Is it realistic to hope that those who are obsessed with maximizing profits will stop to reflect on the environmental damage which they may leave behind for future generations? Where profits alone count, there can be no thinking about the rhythm of nature, its basis of decay and regeneration or the complexity of ecosystems, which may be greatly upset.⁶

Why that pessimism? I think maybe there are two avenues. One is a belief that a carbon emissions trading scheme will not work, that there is a need for more expansive regulation. So, part of his critique is practical. The other may be a moral critique. When he discusses what he believes that an overemphasis on profit could do to the human person, it may be that he’s reluctant to tap into that profit motive as a solution. Will that give people an incentive to use self-interest as a motivating goal? Is it a moral objection he has to tapping into precisely what he critiques as a solution to the environmental problem? It could be either one.

He does have two moments of optimism about market mechanisms. I will end with them. First, he says, “Business is a noble profession.” So, there is recognition that there are good, moral, and just ways of conducting business. He does not think necessarily that incentive programs are the way to do it. The other thing he says, though, is that political institutional frameworks do not exist simply to avoid bad practice, but rather to promote best practice, to stimulate creativity in seeking new solutions, and to encourage individual or group initiatives. That is an acknowledgement that there must be something done to provide positive incentives for good conduct, not just regulation and prevention of harms. There is a role for political institutional frameworks to promote practices to stimulate creativity. The big question is: What are those frameworks? That is one of the questions that he leaves to us to figure out.

Bob Perciasepe: Let me just clarify quickly that the Center for Climate and Energy Solutions, of which I’m currently President, used to be called the Pew Center for Global Climate Change. We have moved forward in this new configuration. One of our objectives and one of our underlying themes is that we feel market mechanisms can play an important role in solving the climate change problem. If you listen to economists, they pretty much all agree that a cost-effective way to move the country and the world forward is to use market forces to force change in the way that we provide goods and services, electricity, and energy.

5. *Laudato Si'*, *supra* note 1, ¶ 54.

6. *Id.* ¶ 190.

It's pretty classic thinking for policymakers to make something that's disfavored be more expensive, while reducing the cost of things that you don't want to be expensive—for instance, payroll taxes or income taxes. The context of this has to be that it is a tool; it is not a silver bullet. You cannot expect that a market putting a higher price on “bad” energy and a lower price on “good” energy is going to magically change everything. Nonetheless, it will move things in the direction that we need to go.

I think one of the takeaways from the encyclical is that it's important for religious leaders to be calling our attention to the moral and ethical aspects of this. Many other religious leaders have been speaking out on this issue. I can't think of a major religion on earth where there hasn't been at least some discussion of these issues in that context. The earth is our home and we have over 7 billion individuals now living on it. They demand many resources and we have to find the best way to provide those resources equitably. I think Pope Francis is also calling our attention to a really important fact, which is that all these tools are imperfect, including both the more traditional regulatory tools and the market-based tools such as emission trading. They are all imperfect tools, and we are being called by the pope to look at those imperfections and see what can be done to avoid or mitigate the imperfections.

I want to make two key points about how greenhouse gases are affecting everybody on earth. First, they're affecting the low-income, fixed-income, and poorer parts of the world more dramatically than they are the rest of the world. That is happening today while we're sitting here. It's imperative that the human race start to figure out how we're going to deal with that. We can't ignore this problem for too much longer as a community on earth. Those impacts are already being felt.

The second point is that pricing policies—ideas that will allow the cost of approaches to producing energy that we want to start to move away from to be more expensive than the ones we want to move toward—are a valid approach. This is a key point that I will discuss. It can be done—and I think we're learning more about this every day—in a way that deals with some of the externalities of doing it, the social issues that arise, and our other responsibilities to different parts of the population.

And adding to that first point, our failure to deal with climate change is already costing us a lot of money. I think almost everyone has heard the litany of things happening in the world that are exacerbated by the fact that we have climate change already underway. For example, we're having stronger storms. Last year, in the United States alone, we had eight extreme weather events that resulted in over \$1 billion dollars of losses. That had never happened before. And when you look at the data on temperature and other issues people are talking about, the science is now settled. Something like 13 of the hottest years ever recorded since we've been recording global temperatures happened in the last 15 years. For the monthly data we have as of today, July

and August 2015 were the hottest months ever recorded on earth. The year 2015 is likely to turn out to be the hottest year ever recorded. Now, that doesn't mean every place is getting equally hot. It may actually be cooler than average right now in the northeast United States. But on average, that's what's happening around the globe.

Also, what we're seeing is more extreme. We're seeing more 100° Fahrenheit (F) days in the cities, more 100°F days in India and other parts of the world where heat waves persist for weeks on end. That's affecting our health. People are dying today because of these direct impacts. In terms of indirect impacts, the warmer the temperatures are, the more it creates ozone in the urban areas of the world; the more difficult it becomes to clean up places like the Chesapeake Bay because when the water is warmer, it doesn't absorb oxygen as much as it does when the water temperature is cooler, and if it doesn't absorb oxygen, it has less oxygen in it. The ecosystems of the ocean and the Chesapeake Bay have a harder time. I don't think it's difficult to understand that fish and shellfish don't have an easy time living without oxygen.

These things are happening. And now this is the economist talking: These impacts are not currently figured into the price of the energy we use, so we use it without thinking, turning the lights on in this room, the air conditioning, all the other energy uses. We use it without thinking about what it's doing to the world. We will continue to do that as a society until the cost of continuing to use it as we have been doing becomes higher in a way that impacts us.

We've already seen market-based approaches working. I'm going to give an aspect to this; I think this has to be clearly said: You can't use the kinds of market mechanisms that have been used and have been proposed on pollution that has a direct public health impact. If we have mercury being emitted by a power plant or some other kind of factory, we can't say, well, you can trade those emission credits to some other location and you can continue to emit here, so long as the overall emissions across all locations keeps going down.

Instead, we find ourselves in the situation where we use market mechanisms for nitrogen oxide and sulfur dioxide and, in certain parts of the country, carbon dioxide. These are all things that have indirect impacts on human health. I just mentioned the problem of too much carbon dioxide in the atmosphere. But it's something we breathe in all the time in the air and in fact actually need.

So, we can't use trading and market mechanisms directly for toxic and direct health impact pollutants. I want to be really clear about this. You've got to look at the kind of pollution you're dealing with. That pollution trading comes into play here because there are plenty of co-benefits. When you use market mechanisms, you use them for carbon dioxide.

Now, in the United States, we've used market approaches. China has announced that it is going to start to move in that direction. They've been testing it in a

couple of provinces.⁷ They're now going to look at it as an economywide approach. That's obviously something we have to all watch. China has immense pressure to do some more important work on pollution across the board. We've used market approaches here in the United States to deal with acid rain, reducing sulfur dioxide emissions. We don't talk about acid rain anymore. I was in the Adirondacks a couple of weeks ago at a retreat. When I went up there as a kid, when I lived in New York, there were no fish in the lake. A few weeks ago, I actually went fishing in a lake that didn't have fish in it decades ago because of acid rain. It was really surprising to me that there were fish there. So we've been able to use these approaches and they've been successful. And they've actually reduced the cost of implementation.

I want to mention the cost of it. When I talk about reducing pollution, including carbon pollution, you have to look at all the tools and how you can do it in a way that is most cost-effective. That's a cold, hard, economic fact. But again, if the price of energy goes up, in our modern society, the people who are most impacted by it are fixed-income and low-income households. We still have a billion people on earth that don't even have electricity, so whether they have energy-efficient air conditioning is not an issue with them. If we want them to start having any kind of life where they have basic electronic connectivity to the rest of the world, forget about air conditioning. We're going to need to have different kinds of energy delivered to those places.

So, we already have quite a few people living under market-based approaches. But what I want to talk about now are some of the things you can do inside the market-based approach that deal with some of these issues. Market-based approaches can be modified to be a regulated market that tries to deal with some of these issues. For instance, you can have an arrangement where a significant portion of the revenue generated from the sale of allowances or from a carbon tax can be rebated for different income levels, depending on the economic impact of the market-based approach.

That's happening in the Northeast. It's happening a little bit in California. Some of it can be used for energy efficiency. New appliances and other equipment and electronics in a lower-income or fixed-income household could be subsidized so that those folks can take advantage of the efficiency side of this as well as the cost side, which over time will reduce their cost. You see this concept built into EPA's most recent Clean Power Plan proposal. I'm not going to go to any detail on that, but they created a clean energy incentive program where they provide extra credits for renewable energy, which has no pollution, and focusing on energy-efficient projects in lower-income communities.⁸ All of that will need to be further defined.

The billion dollars that the Regional Greenhouse Gas Initiative has collected from allowance sales in the Northeast, two-thirds of that has gone to energy-efficiency programs that deal with upgrading appliances and insulation and new heating and air conditioning systems.⁹ I'm not going to go into details on that, but the concept, to the extent that the market is defined, is that when revenue is collected, it can be rebated to deal with some of the social disparities as well as rebated generally to improve the outlook of things that we like, such as job creation or reduced income taxes.

The other point that I think is important when you're dealing with sulfur dioxide or nitrogen oxide, but probably even more with carbon dioxide, is that if we're out there trying to reduce carbon dioxide emissions, you're going to get what's called a co-benefit. In other words, other pollutants are going to be reduced along the way with the carbon dioxide reductions. A simple example would be where you have an uncontrolled coal plant running and you replace some of that electricity with a natural gas plant or with solar energy. In either case, you're reducing the amount of greenhouse gases, but you still have emissions coming out that might have some of these other pollutants in it.

If you allow trading or if you use a tax and it's not evenly distributed, some power plants might keep running because they bought credits from other places. And if those power plants or emitters are in or near lower-income communities, the key is that those plants will still have to meet the other Clean Air Act requirements. But there are forgone co-benefits if you accumulate too many credits in a single location, so some carbon markets are trying to limit the amount of offsetting that can be done at a single location. So, not only must you continue to meet the existing Clean Air Act requirements, but you can only offset your carbon so much, by not accumulating just offsets from buying credits.

My conclusion would be this: There's no doubt in my mind that the moral and ethical issues of our shared planet are becoming more and more apparent to more people. There's probably no better spokesperson for that responsibility than the pope. He certainly brought that home when he visited here.

That doesn't mean that we should throw out all the tools that we have to try to solve this problem, but that we should learn from his instructions on what the anomalies are. We learn from our own experiences about how the tools can have unintended consequences. When we use the market approach, we exercise control to minimize those unintended consequences and maximize other benefits of the revenue produced.

The other thing that's important is that it's been shown that when you use a market-based approach, you can make the reductions of the targeted pollutant happen faster and cheaper than other approaches. That result is a benefit to everybody because the current effect of climate change is

7. See, e.g., Huizhen Chen, *Inspection and Enforcement in Chinese Carbon Emissions Trading: Progress, Problems, and Prospect*, 44 ELR 10596 (July 2014).

8. See, e.g., U.S. EPA, Clean Power Plan Community Page, <http://www2.epa.gov/cleanpowerplan/clean-power-plan-community-page>.

9. See, e.g., Regional Greenhouse Gas Initiative, RGGI Benefits, http://www.rggi.org/rggi_benefits.

disproportionally impacting the world. Not dealing with climate change is a huge ethical and moral issue for the human race.

So, I'll finish with a final point that all tools need to be used, but we must ensure that when we use all those tools, they are designed in a way that they mitigate or even help where there may be disproportionate impacts from climate change.

Caroline Farrell: I am the Executive Director of the Center on Race, Poverty, and the Environment, and I have three main points that I want to discuss today. One is the commonalities between the environmental justice perspective on climate change or responses to climate change and what's found in the pope's encyclical. The second is a practical discussion of how this critique of market mechanisms and responses to climate change played out in California's work almost a decade ago. Third, I want to talk about how we can take some of the recommendations in the encyclical and some of the lessons that we've learned from California and apply them in a practical way to climate policy moving forward as we address this very important and critical issue that's facing us in our common home.

The pope's message reflects, I think, his foundation in liberation theology, which I think has very much in common with environmental justice—basically looking at these issues through the lens of poor people. In the case of environmental justice, poor people and people of color are impacted disproportionately. Issues of faith and issues of policy and politics all come into play in the encyclical.

Basically, the environmental justice principle focuses on the facts that poor people and people of color experience disproportionate impacts from environmental harm, not only more pollution in their communities, but also an absence of environmental benefits such as parks, open space, investment in their communities, all those positives. A lot of themes that I'm just going to touch upon were in the pope's encyclical. They share a common root in environmental justice. That came into play in California's case.

The pope touches a lot on distributive justice, which is the disproportionate impact that communities feel from pollution. For several paragraphs, he talks about all the different types of pollution: water pollution, toxic pollution throughout the life cycle of the production of goods and services, everything from the extraction of resources through the disposal of waste. He reviews the procedural justice implications. Who has power? Who is at the table making decisions? Whose interests are being protected? He talks about social justice, the interconnectedness of ecology, of people, of economies, of politics, of culture, and how it is all combined and requires comprehensive approaches. My favorite sentence of many favorite sentences from the encyclical is this:

Today, however, we recognize that a true ecological approach always becomes a social approach and must integrate questions of justice and debates on the environment so as you hear both the cry of the earth and the cry of the

poor and this idea that you can't separate the ecological approach from the social approach.¹⁰

This has always been a cornerstone of environmental justice. It reflects a broad definition of what our environment is, but also a broad definition of what kind of responses are required.

And then, finally, the encyclical contains a theme of skepticism of the market's ability to provide solutions in connection with the fundamental rights of the poor and underprivileged, stating, "[t]he principle of the subordination of private property to the universal destination of goods, and thus the right of everyone to their use, is a golden rule of social conduct and 'the first principle of the whole ethical and social order.'"¹¹ The encyclical expresses an understanding that the market can't guarantee integral human development and social inclusion; that a solely market-based approach does not necessarily provide benefit for everybody. According to the encyclical, the way the market-based approach has been implemented, the result has benefited few at the expense of many. I think that experience has played out in dealing with the response to where environmental pollution is and where polluting facilities are in relation to poor people and people of color. And then also, what are the issues that we're talking about and what are the solutions that we're deeming acceptable as we move forward with climate policy.

Turning to California's approach to the climate: The environmental justice movement in California was very involved in the creation of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. That bill reflected a lot of elements from the environmental justice critique as well as from the encyclical. California embarked on a goal of determining how we should transform our economy and how we should produce food, fuel, and energy. The bill did a couple of things. It talked about setting a target. We wanted to reduce greenhouse gas emissions in the state to 1990 levels by 2020. Also, it included a lot of different avenues for doing that. It included not only identification of what our target was, but also some of the requirements for how we're going to meet that target. CARB was charged with implementing the law. In its promulgation of the regulations, it must design measures that will maximize additional economic and environmental co-benefits. So, AB 32 has this idea that you can achieve multiple pollution reduction benefits if you design something appropriately.

The act also requires that regulations to implement AB 32 not exacerbate existing air quality problems. You couldn't have a disproportionate adverse impact on low-income communities or communities of color. It specifically called out the fact that there are existing disproportionate impacts. So, AB 32 specified that as you are implementing, you can't increase those impacts. You can't interfere with existing Clean Air Act standards, or average across com-

10. *Laudato Si'*, *supra* note 1, ¶ 49.

11. *Id.* ¶ 93, citing John Paul II, Encyclical Letter *Laborem Exercens* (Sept. 14, 1981).

munities to control air pollution or reduce air pollution or toxic air contaminants.

Specifically in designing market mechanisms, AB 32 requires that you consider localized impacts in communities, preventing increases in toxic air emissions and criteria pollutants. These things were built into AB 32 as it was being passed in 2006. CARB was directed to create a scoping plan, which will lay out a roadmap for how those provisions of the law were going to be met in terms of creating regulations and what CARB's blueprint was for achieving AB 32's goals.

There was great promise in the written legislation and great disappointment in the actual application of it. CARB's approach was to adapt a suite of regulations, including actions that had already been proposed to deal with greenhouse gas emissions. One step was imposing stricter car fuel efficiency standards. There was also a gubernatorial executive order in connection with California's renewables portfolio standard to increase renewable energy in our long-term power plans. There was a goal set for one million solar homes, to get solar energy deployed in more of the state to reduce carbon emissions.

The only industry regulation that was proposed was a cap-and-trade system. That was the market mechanism that they chose. One of the questions and one of the concerns that environmental justice advocates had related to our experience with past trading systems, particularly trading systems that involved trading stationary source credits for mobile source. The two sources are very different because when it's a mobile source, the pollution is sort of dispersed in urban areas, but stationary sources are fixed in one location. So, the benefits really were not equal in terms of what was being traded for what.

We also saw from the European experience with cap-and-trade that there were issues with transparency, there were issues with effectiveness, there were issues with the allowance amount itself and how allowances were distributed. So, we had all these questions for CARB about how they were going to manage this, how they were going to ensure, as required by AB 32, that they were not localizing pollutants. We never got a satisfactory answer to that. We still don't know.

The other issue that we had with cap-and-trade, as it applied to AB 32, was this was an economywide program. All the sectors in the economy, or several of them, were going to be included within the cap, and many different pollutants were going to be involved. A multi-sector, multi-pollutant trading program administered by CARB raised a lot of issues about the complexity, about the amount of bureaucracy it was going to require, about the amount of opportunity for manipulation, and the lack of transparency in that approach.

So, CARB moved through a scoping plan process, and the environmental justice community raised a lot of comments about their proposal. A lot of these comments focused on: If we're going to do a cap-and-trade program, how are we ensuring that we have exhausted all the direct

regulations that are in place now, or that we are capable of instituting, because the market was billed to us as the way California would make up the difference between what could be achieved through direct regulation and reductions needed to meet the cap we set.

CARB set about determining what will be required to reduce greenhouse gas emissions to 1990 levels. They analyzed what could be achieved by the different regulatory schemes that they had come up with, and then whatever was left over would be traded in the cap-and-trade system. So, our question was: Have we actually exhausted all the direct regulations already in place?

Direct regulations were preferable for several reasons. One is that they would be applied across industrial sectors. So, you wouldn't have a situation where the trading program of this community has a reduction, but this other community doesn't. Or, this community over here in California is not experiencing any improvement in local pollution, but somewhere else where we have linked our cap-and-trade program does show an improvement. (At that time, California was thinking of linking our cap-and-trade program with many western states and some provinces in Canada. That proposal fell through and now it's really just Quebec and California.)

What does it mean for local pollution to have these very diverse geographic areas linked in the same cap-and-trade system? Direct regulation in California ensures that California communities with the same facilities are experiencing the same benefits. That's increasingly important in California because a study was completed around the same time that CARB was going through this rulemaking in 2009, 2010. It was called "Minding the Climate Gap."¹² Basically, what it showed was that within six miles of a facility that would likely be beyond the cap, such as a cement plant or refinery, over two-thirds of the people affected were African-American and over 60% were Hispanic. So, we're dealing with a situation where the people who are most impacted are people of color, which was an important consideration as we're looking at how we're having a regulatory approach to this.

My organization, the Center on Race, Poverty, and the Environment, was one of the entities that challenged CARB's scoping plan in 2009 that laid out the blueprint for how CARB would respond to its AB 32 implementation requirements. We challenged it on several grounds. One, CARB did not comply with AB 32 because it was not paying attention to localized pollution; it was not maximizing the co-benefits that could come from direct regulatory process or at least looking at market mechanisms that did not have a trading component, like a cap-and-tax or cap-and-fee program. The court agreed with our challenge to the alternatives analysis that CARB had not done a thorough analysis of why cap and trade was preferable to

12. MANUEL PASTOR ET AL., *MINDING THE CLIMATE GAP: WHAT'S AT STAKE IF CALIFORNIA'S CLIMATE LAW ISN'T DONE RIGHT AND RIGHT AWAY* (2010), available at <http://dornsife.usc.edu/perc/mindingclimategap/>.

a cap and tax or cap and fee, and ordered CARB to perform a new alternatives analysis.¹³

What was a bit concerning for us while CARB was doing that around 2013 is that the judge also ordered CARB to stay its adoption of the cap-and-trade program until they completed the alternatives analysis. We learned that CARB was simultaneously preparing its cap-and-trade regulation for final approval while it was doing the alternatives analysis in response to our lawsuit, which made it seem that we were not going to get a fair shot at an alternatives analysis.

Ultimately, the court found that CARB had complied with the law, given the deferential standard of judicial review that agencies receive, and had provided enough information, but the experience still left a bad taste in an environmental justice advocate's mouth because it seemed that we weren't getting a good-faith analysis of what the alternatives really were. I think one of the things that was highlighted by this experience in California is that the political momentum was really around cap and trade.

We wanted to do something for our climate. The state wanted to be a leader, they wanted to get out there, and they wanted to create this set of flexible tools that would create incentives and efficiencies for meeting our climate challenge. But in doing so, the state forgot that there were other considerations. Specifically, how do we deal with the situation that the communities that have been on the fence line of the carbon economy, that have been dealing with the impacts to their health from pollutants, are now not seeing the maximum benefit they could from our response to shifting away from a carbon economy?

The cap-and-trade system allows us in many ways to continue doing what we've been doing without a critical analysis of the impacts of it. That was something that was also reflected in the pope's encyclical, the idea that this is the time for us to ask ourselves what kind of society we want to build. How do we deal with the inequities that have been exacerbated by the carbon economy, and how are we going to address the inequalities as we transition to something else?

I'll conclude with a couple of approaches that California environmental justice advocates have been taking to try and create practical applications for a comprehensive solution. One is that we've worked with the state in the Office of Environmental Health Hazard Assessment to create a tool called the CalEnviroScreen. It identifies disadvantaged communities in the state based on social vulnerability demographics, including poverty, age, asthma conditions, language isolation, and proximity to environmental hazards such as air-polluting facilities, water pollution, toxic air contaminants, and hazardous waste facilities, based on a census-tract level so we can see which communities we are talking about and what impacts and exposures they are potentially facing.

We've also created a somewhat controversial Greenhouse Gas Emission Reduction Fund. That's in Senate Bill 535,

which sets aside a portion of carbon tax or cap-and-trade revenue directly for investment in disadvantaged communities as identified by CalEnviroScreen. The positive is that communities that have long been neglected and that are impacted would get some investment. The downside is that it does not get to the point of questioning assumptions about whether the market is working for us if we just have a revenue stream. Are we getting distracted by having more revenue available, or are benefits actually coming to the community, not only economic benefits, but also health benefits, job benefits, things like that?

A lot of advocates are also looking at distributed generation as a way of deploying renewable energy in communities. So, instead of large-scale solar operations in the desert that would get a lot of renewables into the system, we are looking at distributed generation as rooftop solar in low-income communities and communities of color, which are often the sites of large-scale fossil fuel power plants, and looking at ways of creating job opportunities, job training opportunities, as well as environmental benefits. If the carbon economy transition is going to lead to increased costs of food and fuel, then we should make sure that people have economic opportunities to help them meet those challenges. The challenge is to find solutions that raise people up out of poverty while also dealing with the environmental crisis. Those are just some of the frameworks that environmental justice advocates are using in California to go beyond cap and trade and demonstrate that there are alternatives to market mechanisms for addressing this challenge.

Leslie Carothers: Now, we'd like to open it up to questions. I first want to ask the panelists if there's anything they would like to ask each other as a follow-up question. If not, we have some questions from the audience.

ELI's Scott Fulton: My question is for Lucia. I was asked to give a message in a Baltimore church last week and they're very much interested in the encyclical. I wish I'd had the benefit of your scholarship before doing that. You made an important observation about the encyclical's dealing with climate change in only about 5% of the text. In view of the observations made by Bob and Caroline, I wanted to ask whether you thought that the pope's critique of market-based systems attach with particularity to climate change?

The reason I ask is that Bob has observed the kind of special nature of carbon dioxide as a pollutant: It doesn't have direct localized effects; its effects are rather indirect as part of the climate change phenomenon. That's different in kind from air toxics and, for that matter, criteria pollutants. Caroline has made the complementary point that when other pollutants are implicated, market-based systems become tricky because they can produce, unless we're very careful about it, a concentration of pollution in communities that can least afford it. Those communities are often already subject to disproportionate amounts of pollution. So, the question for you, Lucia, is do you think

13. *Ass'n of Irrigated Residents v. Cal. Air Resources Bd.*, No. CPF-09-509562, 41 ELR 20080 (Cal. Super. Ct. Jan. 24, 2011).

the pope was specifically talking about climate change when he offered his critique of market-based systems?

Lucia Ann Silecchia: I don't think so. That may have been his initial impetus for the critique. But looking at the encyclical as a whole, Pope Francis identifies such a range of environmental problems that I think the basic point he was trying to make by that critique of marketplace ideas is a profound, almost radical sense that there needs to be an overall personal and political conversion on all fronts. He speaks about the throwaway culture as being at the heart of a lot of problems. When many of us speak about "throw-away," we mean discarding resources and material things. But he's talking directly about throwing away people who are not seen as having value.

So, part of his concern about a marketplace-like ideal is that it enables us, in some ways, to avoid what he believes is the central and difficult question: Do I throw people away? Do I do that, out of selfishness or my sense of power over them? Part of it certainly is a piece of an overall economic critique. But his concern might also be that if people rely on a marketplace ideal, it might be a way of enabling us to avoid the question of what he proposes as a radical change, not just political and economic change, but also the more difficult personal change.

Bob Perciasepe: I'd like to add something. Not in any way, shape, or form do I have a better scholarly view of the encyclical than does anybody else, but I took that part of the text to be more broadly cast to our economic systems. I see a difference between our economic system on earth and what we should do about it. The fact that our economic system exists and we have a problem with carbon pollution—we have to deal with that. I think that in the existing global economy, making the things that are perhaps driven by the kind of behavior the pope alluded to, a throwaway economy, making it more expensive to behave that way in our economy is a valid tool for changing that behavior. Market mechanisms—the exchange of goods and services and ultimately money for activity—it's even in the Bible, when we put it that way. The question is, how do you change the behavior of how that system works?

I'm moving in a very dangerous zone between the moral and maybe even theological underpinnings of civilization and the fact that we run these economies, but clearly making the bad things more expensive in the way we do business now is a valid approach to changing that behavior. What we cannot do, though, is take that step without understanding how it may disproportionately impact in the other direction because it currently does have disproportionate effects. We need to understand exactly how it disproportionately impacts. Here's where I look to the work that's going on in California and how they're trying to deal with these issues. They also are trying to do something at the state level, which is very difficult to do, so their experience is instructive in that respect as well.

Those are some of the things that I think the pope was talking about, that we have to look at how we can change some of our behavior. I think market mechanisms, believe it or not, are one way to make that happen.

ELI's Jessye Waxman: I wanted to ask a question about the acceptability of this idea of cap and trade, how it's certainly an imperfect solution, but a solution that has the potential to be effective. My question is, does the ability of corporations, companies, utilities, and other entities to buy credits in order to continue to pollute, which might have disproportionate impacts—does that option make it more acceptable to industries that would push back against more direct regulations on sale, such as a carbon tax? How do you weigh the potential disproportionate effects of something like a carbon trade system against its potentially greater acceptability to sources? And if you can move forward with regulating carbon dioxide in imperfect ways, is that better than not being able to regulate at all?

Bob Perciasepe: I'm not 100% certain what you're getting at there. But I think a cap-and-trade program on carbon dioxide, if that was all that was being emitted from these plants or facilities or vehicles, would not have a disproportionate impact because it doesn't have a disproportionate impact locally. It is not a local pollutant that creates a local effect. Now, it is associated with land use and other activities that do have those effects, and we already know about those effects. You want carbon dioxide to be reduced overall. But if you don't do it uniformly, if you do it more here and less there because it's more economical to do that, you have to guard against the "less there" when it's associated with other pollutants and you have to be careful to not let an area accumulate doing less of something and having the other pollutants continue to be disproportionately impacting a community. If we didn't have those other pollutants associated with carbon dioxide, this would not be the same issue. It would be a different issue.

ELI's Jessye Waxman: Let me restate my question in two parts. The first part is whether or not the ability to buy up pollutant credits makes a cap-and-trade system more acceptable to industry-based people as opposed to direct regulations that would simply tax them. If that's the case, how do you balance it with the problem of disproportionate impacts versus more localized impact? How do you weigh global regulations for globalized impact, in one scale, against disproportionate local impacts, in the other scale?

Caroline Farrell: I know what Bob was saying about the disproportionate impacts being related to what kind of pollutant you're regulating. I mean, that's almost a given. But many environmentalists and many business people who believe that climate change is a real problem feel that they can make the case better to their skeptical compatriots, whether they're legislators or other businesses, by point-

ing out that we have methods for achieving a significant reduction in carbon dioxide that are not going to tank the economy. There are methods for doing this that can actually be profitable for some members of the industry. So, it is considered a way of trying to sell action to people who would otherwise not be very receptive to something that they think might be unduly burdensome.

One of the most important things that Lucia said is that the pope cautioned us not to have a program and a philosophy that makes self-interest the only motivating goal. To some extent, you are arguing self-interest when you're arguing cap and trade. It just makes economic sense. It's cheaper, it's faster, et cetera. I think what the pope has added, and very importantly, in the encyclical is that this is a moral issue. It affects people. It affects the future of life on the planet, if you believe the science. I think he's trying to make a corrective here. Rather than just using cost-benefit analysis or efficiency criteria to persuade the skeptics, which is a worthy cause, we must not forget or neglect emphasizing that the reasons for doing these are compelling and they have to do with human beings and the good life on earth.

I will just add that in terms of weighing competing interests, those are political questions. That's why it's always being talked about. I think what's important as well, in terms of seeing what's happening in California, is that there's a lot of organizing going on among low-income communities and communities of color and environmental justice advocates to start putting political pressure on decisionmakers to make choices. So far, the scales have shifted in one direction largely. The economic interests have often dominated. How you shift that so that there's a little more counterweight and we end up with a more equitable system, that's the challenge.

Bob Perciasepe: There are two disproportionate impacts here. There is one of pollution. But there's also one of cost. We need to find the lowest-cost way to mitigate something that is already disproportionately impacting us, i.e., climate change, and will get worse every year from now on unless we do something. If the people who are going to be most affected by it are the same low-income communities, communities of color, environmental justice communities globally, finding the lowest-cost way to try to mitigate is not somebody out there making a profit. I don't know, Leslie, how that comes into this. The idea is that we're making people spend money to reduce these emissions. And finding the lowest-cost way to do it makes sense.

But all of this has to work together. If you look at the relatively long term as opposed to immediate term (which I agree we must look at, I'm not suggesting we don't), to get to the point where over some period of time (let's say before the middle of this century or a little bit into the second half of this century) it becomes untenable to continue to produce energy the way we have been and we develop new ways to do it because we've made the cost of doing it the old way more expensive than the cost of doing it the

new way, that will make it happen faster. People always make a profit somewhere if they're in business, but this is looking at a way to reduce the cost of the change, not to stop the change.

Along that change pathway to eliminating the huge problem we call climate change, we need to ensure that the cure doesn't create more of the disease of disproportionate impact. I think that's the key point; that we'll use this tool of a market-based approach that has those protections and those mitigating factors built in.

Audience Member: I'll confess to being an economist in the room. But I want to ask a different question. Economists are fond of saying: "Get the prices right." It comes with what Bob was talking about. The way I hear people talking about the encyclical is that it's more important to get your heads right and that if we have a system based upon getting the prices right, you're never going to get your heads right.

That leads to a practical question, which is that if we're dependent on getting our heads right rather than getting our prices right, are we going to get rid of carbon any faster or not? For reasons Bob has discussed, I'm kind of skeptical, but I think it's an important question to ask. That's the choice we're being confronted with. The other thing is, in order to get the policies Caroline has talked about, if we're going to have to get our heads right in the first place anyhow, then maybe we should just cut out the middleman and get our heads right in the first place.

Bob Perciasepe: I would simply say that the more we think of this as a binary choice—we either do it this way or that way—the more we get stuck. I think we can design a transition for earth that is economically viable and gets us where we need to go, but just getting there is a tremendous tumult.

Audience Member: I'm interested in the empirical basis of, for instance, the Pope's concerns about market-based mechanisms, and also for your support for them and your skepticism. Aren't there a lot of empirical data out there that would point us in one direction or another?

Lucia Ann Silecchia: There is not much in the encyclical about the empirical basis for it. Prior to its release, certainly experts were consulted by the Pontifical Academy on the Sciences and the Pontifical Council for Justice and Peace.

My assumption would be that they provided input as to some of the empirical research that you do not see in the encyclical. I also think a lot of what Pope Francis wrote about was shaped by personal experience. Whether that's a good way or a bad way to frame the issues, his experience is that of coming from South America and having been a pastor in urban areas. That's where he spent much of his life. So, he approaches this from the perspective of seeing firsthand the difficulties people struggle with in cities.

One of the weak points of the encyclical is that it offers a very detailed description of the problem, but not so much a description of the solutions. What specific things should be done? For example, where there's a discussion of the importance of regulations and limits on economies, we know somebody has to take those actions. That somebody typically would be the government or the political process. Yet, there's also some skepticism in the encyclical about how politics work. So, maybe that goes to the point that people in politics and in the economy need to approach this issue looking at a different set of values than they have in the past.

I see the encyclical as written from personal experience, from what Pope Francis has actually observed, and then inviting what he calls in one phrase, "a dialogue fruitful for all," inviting scientists and economists to continue the discussion that he began as more of an experiential approach than one that was based on empirical data backing specific solutions.

Audience Member: Do people think that the politics around cap and trade have changed since 2010, because there was thinking going into the Waxman-Markey fight that it would be a lot more palatable, and maybe in some sectors it is. But that didn't prevent industry and opponents from calling it literally "cap and tax." They literally called the program a tax. I don't know if there have been ongoing dynamics in regional cap-and-trade systems or other thoughts about whether the politics have changed around cap and trade and whether it's really that much worse or better politically than a straight tax.

Bob Perciasepe: Well, 25% of the population of the United States, about 28% of the gross domestic product in the United States, currently lives in an economy that has a cap-and-trade program, quote-unquote, a price on carbon, while we're sitting here and talking. As I mentioned earlier, those programs are now learning how to deal with some of the resulting issues. They put in place some programs—still probably to be further refined—to deal with any potential disproportionate impact. Market mechanisms will never be perfect in terms of avoiding disproportionate impacts, but they can and must get better. I'm always looking for the optimization.

Speaking to the question about the politics of things, I would say that Congress is just not prepared to deal with this issue right now. It's not a fruitful place to have a debate because they've drawn lines. If I ever became a legislator, I would always avoid drawing the tight line until it really had to be drawn. But the current Congress tends to draw lines before they even know what the issue is, and then

they have a hard time reaching out to the other side of the line to even have a conversation. In a democracy, you have to be able to have conversations about these things. Hopefully, Congress will get back to talking and working across the line they've drawn, but right now, they're not.

A lot of the activities in reducing carbon emissions are going on in some of the places that we've already talked about, in the Northeast and California. EPA's Clean Power Plan leads states to look very hard at some kind of market mechanism to be able to deal with meeting the goals of that plan, or having much more discussion in more states about different approaches to market mechanisms. Whether you can call them cap-and-trade programs or programs that will allow some kind of market-based flexibility, all of that will be evolving over the next couple of years, but they're all going to have to deal with the issues we've been talking about here.

I'm not going to speculate what the long term will be in the United States or in the world. But whether you do a regulation or some other kind of market-based approach, you're putting a price on energy. If you regulate every power plant to do X, it costs money to do that and they're going to pass that X on to their customers and that can have a disproportionate impact. The idea of finding a way to get X to happen in the most economical way without creating more disproportionate impacts is really the Holy Grail here. I'm not one of those ones who say that my parish priest doesn't tell me about the economy. I take "Thou shall not steal" as pretty important economic advice. If indeed we have a system where it's not equitable, you can decide whether that fits the category of stealing or not.

Leslie Carothers: I'd like to conclude with two more of the pope's comments. One of the things he said in his address to the United Nations that I think practically everyone can agree with is that the right use of natural resources, the proper application of technology, and the harnessing of the spirit of enterprise are essential elements of an economy that seeks to be modern, inclusive, and sustainable. He also said in his speech at the White House that "climate change is a problem which can no longer be left to our future generation. When it comes to the care of our common home, we are living at a critical moment of history."¹⁴ We hope his message in those two regards will be heard and perhaps have some influence on the debates of this country. I want to thank our wonderful panel for giving us such interesting and substantive perspectives on this issue, and thanks very much to our audience members for attending.

14. Press Release, White House, Remarks by President Obama and His Holiness Pope Francis at Arrival Ceremony (Sept. 23, 2015), <https://www.whitehouse.gov/the-press-office/2015/09/23/remarks-president-obama-and-his-holiness-pope-francis-arrival-ceremony>.